

Gender disparity and implicit gender bias amongst doctors in intensive care medicine: A ‘disease’ we need to recognise and treat

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Abstract

UK medical schools have trained equal numbers of male and female doctors for almost 20 years. However, within intensive care medicine only 22% of consultants are female. This article uses the classic descriptors of a disease to explain how unconscious gender bias leads to gender disparity. It provides an introduction and summary of the literature explaining how unconscious biases are formed. It then shows how through overvaluing classically male, or agentic traits, intensive care medicine is at high risk of perpetuating gender disparity to the detriment of the whole speciality. Finally, it covers practical options on how to improve bias awareness and gender disparity nationally and locally within intensive care medicine.

Keywords

Gender, gender bias, implicit bias, intensive care medicine, ITU

Introduction

Many things which once were commonplace now seem dated: cassette tape players, teletext, dial-up internet ... in the future, the same will also be said of majority-male workplaces and leadership teams. Intensive care medicine (ICM) is in danger of becoming a speciality with 20th century working culture in a 21st century world. Gender disparity is not just a ‘women’s issue.’ It has consequences for the sustainability of the specialty and for development of a positive, modern workplace culture. To introduce the concepts of gender disparity and implicit gender bias and analyse their effects on ICM, this article will provide a summary in the manner of a disease or syndrome studied at medical school. From aetiology through to prognosis, we will describe the current gender disparity within ICM and discuss how implicit gender bias perpetuates this.

Epidemiology: The data describing gender disparity in ICM

For the last two decades, UK medical school graduates have been almost balanced between men and women.¹ Gender disparities begin to appear at

specialty training level, and in the UK ICM is male dominated. The 2018 UK Faculty of Intensive Care Medicine (FICM) Workforce Databank reported that 39% of registered trainees and 22% of consultant-level Fellows practising in the United Kingdom were female.² A 2018 study requested data on gender distribution at all levels of ICM from 27 societies and training bodies worldwide; 6 returned the data.³ The mean (SD) percentage of women intensivists across these societies was $37 \pm 11\%$ (range 26–50%).

There is a gender gap in speakers at critical care conferences. In a 2018 study, the proportion of female conference speakers at five major conferences (ESICM, SCCM, International Symposium on Intensive Care Medicine (ISICEM), Critical Care Canada Forum (CCCCF) and ICS State of the Art meeting) was reviewed.⁴ The proportion of female physician speakers was low in all five meetings, ranging from 1 to 32%. The potential reasons for the

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gender gap at these meetings proposed by the authors included that organising committees assume either that women are unlikely to accept invitations due to family or professional commitments, or that there are no women qualified to speak on a particular topic, and invitations of regular conference circuit speakers who have tended to be male.

In academic critical care medicine, female academics were cited as first or senior author in only 15% of high impact journal critical care publications between 2011 and 2017. A study of female participation in critical care taskforces examined 10 major critical care task forces that met between 2011 and 2017 and found female physicians made up an average of 7% of task force participants (range 0–17%). Whilst it is quite possible many women were invited but chose not to participate, these data highlight a significant gender imbalance in task force composition.⁵

Definition: Implicit bias and stereotypes

Implicit biases are attitudes that affect our understanding, actions, and decisions in an unconscious manner.⁶ Implicit bias operates outside of our conscious control and differs from racism, sexism and other forms of explicit, conscious discriminatory behaviour. They are a product of our social and cultural environments and lead us to unconsciously generate associations between certain types of people, and certain values and behaviours. These biases act as cognitive shortcuts, allowing us to make rapid assessments of the many people we may interact with in the course of a day and can encompass both favourable and unfavourable assessments.

Stereotypes arise from the collective response of a given culture to a specific group. A stereotype is defined as “the relatively fixed and overgeneralized attitudes and behaviours that are considered normal and appropriate for a person in a particular culture based on a specific attribute,”⁷ or more simply as “a belief that members of a group generally possess some characteristic.”⁸ Cultural stereotypes are made up of a multitude of individual implicit biases. Stereotypes can become imprinted into the minds of those holding them so that they start evading conscious control, and in turn form and deepen implicit biases.

Pathophysiology: How does implicit bias lead to gender disparity?

Project Implicit, a Harvard-based international network of researchers, has shown how gender stereotypes are developed through the processes of socialisation from early childhood.⁸ These biases are strengthened through repeated exposure to stereotypical images seen in an individual’s social group, and through wider social exposure including media images.

Table 1. Agentic and communal personality traits.

Agentic	Communal
Competitive	Warm
Ambitious	Sensitive
Determined	Caring
Aggressive	Compassionate
Intelligent	Sympathetic

Gender stereotypes can be broken down into descriptive components and prescriptive components. The descriptive component describes stereotypical beliefs of what male and female characteristics and behaviours are, for example women are sympathetic and warm, and men are ambitious and decisive. Such characteristics are described in Table 1. Stereotypical male traits are described as agentic, and female traits as communal. The prescriptive component of gender stereotypes describes what men and women should be, based on the gender stereotypes prevalent in that particular social group. For instance, women *should* be sympathetic, kind and warm, and men *should* be ambitious, competitive and decisive. When there is a lack of congruity between the expected and the observed behaviours of an individual, the individual may be perceived negatively. This risk of negative perception means that both genders may tend, possibly only subconsciously, to avoid joining social groups – for the purposes of this discussion, medical specialties – which are incongruent with their prescribed gender stereotype. This re-enforces the original stereotypes and gender disparities within a group can become more fixed.

Risk factors: What makes ICM at particular risk of ongoing gender disparity?

There is an agentic-communal hierarchy in medical specialties. The more procedural specialties such as surgery and ICM are considered higher status and more agentic than less procedural specialties, particularly these associated with children and family medicine, which are perceived as more communal. In the USA, these communal specialties are associated with lower remuneration.⁹ The gender proportions in these agentic specialties in the UK are skewed in favour of men, and the converse is true for the communal specialties.¹⁰ Once this agentic-communal hierarchy is established, a doctor may feel unconsciously drawn towards the specialty in which their gender is better represented because of prescriptive gender stereotypes. ICM is a procedural speciality, and our historic culture is one where agentic characteristics are preferentially valued. Once this stereotype is established it continues to self-enforce and trainees may be drawn towards a specialty where most of the doctors

resemble themselves. They may not be aware that this has been a factor in their decision making.

A 2019 Canadian study interviewed 105 trainee (20% female) and 371 consultant-level (28% female) physicians in 13 Canadian academic institutions and conducted qualitative semi-structured interviews to examine the potential drivers of gender inequity in critical care medicine.¹¹ Female and male interviewees identified the working patterns in ICU, including long and inflexible clinical hours, predominantly male leadership, and lack of female role models giving the impression of limited potential success for women in the specialty as potential barriers to gender equity. Female participants reported that typically male-dominant personality traits seemed to be openly valued in critical care physicians. This, combined with a lack of female role models and mentors, was perceived as a major driver of gender disparity in ICM. A quarter of men, but no women, felt that women were generally less attracted to high-pressure medical specialties.

Signs and symptoms: What problems does implicit gender bias cause in ICM?

The first ‘symptom’ that implicit gender bias causes in ICM is it may make it harder for women to succeed as leaders. Traditional leadership behaviour involves displaying agentic traits.¹² Female leaders may experience a lack of gender role congruity – in order to behave as a leader, they need to behave in an agentic fashion, but in doing so, they will be perceived as violating their prescriptive gender stereotype and thus are incongruent in their gender role. This is known as the role congruity theory.¹³ If a woman succeeds at male gender-typed tasks, she is likely to be viewed by both men *and* women as less likeable and more interpersonally hostile, although not necessarily as less competent, compared to her male colleagues. This can result in negative overall performance evaluations.¹⁴ Though this is not studied in the clinical environment, evidence from the corporate sector confirms increased leadership diversity directly improves outcomes with research from the Harvard Business review concluding “gender diversity relates to more productive companies, as measured by market value and revenue.”¹⁵

A further ‘symptom’ of implicit gender bias in ICM is its impact on men within the speciality. Traits such as dominance, competitiveness and assertiveness are associated with high status in the workplace and are also congruent with the male gender stereotype.¹⁶ ‘Modest’ men whose personalities do not naturally align with the male gender may be more negatively perceived than women who demonstrate identical communal-type traits. This is known as the status incongruity hypothesis. This states that a ‘modest’ man will be negatively perceived because he fails to demonstrate the high-status, alpha male agentic traits

that are typical of the male gender stereotype, demonstrating instead lower-status behaviours such as help-seeking. These behaviours tend not to be negatively perceived in women to the same extent, as they are congruent with the female gender role.¹⁶ Men in the workplace may therefore be perceived as less competent than women for displaying identical help-seeking behaviour, as this is perceived as weakness, a trait that is strongly proscribed in the male gender role.¹⁷ This may lead to a culture where male doctors find it more difficult to ask for help which in turn leads to them being at risk of emotional burnout.

Stereotype threat is the term given to a phenomenon whereby an individual who is a member of a group that is subject to negative stereotypes performs below their actual ability in a situation where this stereotype is at risk of being confirmed. This phenomenon was originally described in 1995. Investigators gave a group of black and white American students, matched by SAT scores, a standardised verbal reasoning test. In the stereotype threat group, students were told that the test assessed intellectual ability, thus implicitly eliciting the negative stereotype of black people being less intelligent. In the non-stereotype threat group, the students were told that this test assessed problem-solving, with no mention of intellectual ability. There was no significant difference in score in the non-threat group, and in the threat group black students achieved significantly lower scores.¹⁸

Stereotype threat can impair performance through several mechanisms. A group subject to a negative stereotype, such as a quiet unassuming male ICU specialty trainees (“he’s a bit of a wimp”) will be motivated to perform in a way more congruent to their gender’s more classical stereotype (in this case, demonstrating agentic traits) particularly in tasks requiring a subject to perform at the limits of their ability. The involuntary act of suppressing negative thoughts resulting from the desire not to behave in accordance with negative gender stereotypes (“the boss is watching me do this tricky intubation, I need to man up and not behave like a wimp”) can lead to an increase in conscious attention to normally automatic processes, a depletion of working memory and ability to process information and as a result, impaired performance.¹⁹

There is evidence that implicit gender bias adversely affects educational feedback and results in differential attainment in doctors in training. In the USA, a comparison of 33,456 EM training evaluations demonstrated similar attainment by male and female residents in the first year. As training progressed, the rate of attainment of these milestone evaluations was consistently higher in male trainees. The investigators hypothesised that in the latter years of training, when residents were expected to demonstrate greater clinical autonomy and leadership, implicit gender bias may have led to a slower rate of

attainment of training milestones in women.²⁰ In a qualitative analysis of attending physician feedback to EM residents, female residents experienced more variation in feedback from different attendings and were more likely to receive negative feedback about perceived personality traits rather than observed behaviours. Female trainees received feedback about needing to demonstrate more assertive, autonomous behaviour whilst still being open to direction by the attending on call; this theme did not appear in feedback to male trainees. Female trainees, in the same feedback cycle, could be described as too assertive and lacking in assertiveness. Again, this variation did not appear in feedback to male trainees. This appears to reflect the tension between valued leadership behaviour which necessitates display of agentic behaviours, and the role incongruity which leads to women being negatively perceived for demonstrating more agentic than communal behaviours, resulting in feedback that is confusing or contradictory.

Treatments: How can we combat gender disparity in ICM?

Strategies to reduce the gender imbalance in ICM fall under three broad categories; guidelines, initiatives such as the UK Faculty of Intensive Care

Medicine's Women in Intensive Care Medicine (WICM) group, and education on implicit gender bias and the value of diversity.

Guidelines on diversity and gender parity have been produced by the ESICM²¹ and the Australia and New Zealand College of Intensive Care Medicine (ANZICS).²² The ESICM document outlines a commitment to improving not just gender diversity within leadership in the society, but diversity of ethnicity, socio-economic status and professional background. The guidelines acknowledge that lack of diversity is 'unarguably accompanied by major loss of potentially important contributions and impeded excellence in science and patient care'. The ANZICS statement on gender balance within the College of Intensive Care Medicine has committed to targets for female representation for College Board, examiners and speakers at College-affiliated meetings from minimum 30% in 2019, to 50% from 2022 onwards. Panellists for trainee selection interviews will be encouraged to undertake training in unconscious bias, and access to training on a less than full time basis will be made more accessible for all trainees. The College has also formalised mechanisms to ensure trainees and consultant fellows are empowered to raise any inappropriate behaviours in the workplace, and training in this will become

Table 2. Proactive examples for improving local culture.

Career stage	Action	Effect
Any	When giving feedback either verbally or as part of work-based-assessments proactively think; is this purely based on evidence or on a biased view of gendered behavioural norms.	Proactive thinking about whether our feedback is truly based on evidence will provide more honest feedback, enable recipients to fulfil their potential.
Senior STs or consultants	Arrange cross-cover to leave the unit for a few hours in an afternoon to attend sports day/school concert and return to make up the time that evening.	This reframes our work culture, normalising family care and involvement from intensivists of any gender.
Senior STs or consultants	Proactively, and formally, look for opportunities to mentor doctors in training of all genders.	Evidence shows active mentorship greatly increases diversity in leadership, and this is most effective when applied universally ²⁸
Any educator	Make implicit bias training part of the departmental education programme. Done well, it should be insightful and need not take longer than a standard lunchtime meeting	Providing education on, and strategies for reducing, implicit bias promotes behavioural change at personal and institutional level ²⁷
Educational supervisors	Proactively discussed shared parental leave with male trainees.	This will normalise training breaks for all sexes.
Educational supervisors	Focus on delivering objective career guidance, rather than subjective career advice.	Giving subjective advice risks influencing others with our personal implicit biases e.g. "intensivists need to be emotionally detached".
Managers	Read a Hampton Alexander Report (the government report into gender disparity within large companies) ²⁹	This provides multiple examples of how large organisations have improved gender diversity and corporate culture.

mandatory for trainees and recommended for consultant fellows.

Educational initiatives to improve bias literacy are effective in reducing implicit bias.²³ Because these biases are implicit, it may be argued that bias literacy training is vital for anyone involved in recruitment, training and leadership. Stanford Medical School provides free online CME-accredited education on implicit bias in medicine, available here: <https://online.stanford.edu/courses/som-ycme0027-unconscious-bias-medicine-cme>.

Initiatives such as the UK WICM group provide visible female role models locally, regionally and nationally. They promote mentorship for female ICM physicians and improve participation in leadership by developing programmes such as Emerging Leadership fellowships. Internationally, groups such as the ANZICS Women in Intensive Care Network (WIN) promote the interests of female ICM physicians. There is evidence that membership of such networks enhances professional progression and retention within the specialty.²⁴

There is also a need to acknowledge that while not all intensivists will become parents, men need to be perceived as equal parents to women. Social norms still strongly assume women will shoulder most domestic tasks. This is associated with lower job satisfaction for women in procedural specialties such as ICM²⁵ and devalues the vital role men play as fathers. NHS England announced recently that shared parental leave and maternity will be remunerated equally, allowing trainees of any gender to take time out without excessive financial penalty.²⁶ The millennial generation rightly perceives life outside of work as equally valuable to professional life and is less likely to accept the unlimited work commitments that older generations assumed was essential to progress and thrive in medicine.²⁷ In order to ensure the sustainability of ICM, the specialty needs to ensure its working patterns are compatible with such values, and long-term workforce planning will need to take this into account. Table 2 lists ideas which may be implemented at a local level.

Prognosis: Conclusions

Intensive care is a challenging but immensely rewarding specialty. However, as the world moves forward with changing work patterns and cultural expectations, our speciality is at high risk of suffering as a result of undiagnosed gender disparity driven by implicit gender bias. We need the best people in ICM, but our definition of 'best' should not be subconsciously distorted by the lens of implicit gender bias. Gender equality, a strict 50:50 balance of men, and women, is neither logical nor feasible. Instead we need to aim for gender equity – ensuring that gender is no barrier to success in a career in ICM. We owe it to the specialty to become more bias aware, to re-evaluate our definition of 'best' to ensure this is not simply

'people who look like me'. We should embrace diversity – not for its own sake and certainly not to meet quotas – but willingly, because diversity of thought, approach and behaviour is beneficial for patient care, future research and workforce wellbeing.

When it comes to gender disparity, what is the prognosis for ICM? We don't know – this depends on many factors external to ICM such as changing social norms, legislation surrounding parental leave, as well as medical training and regulatory bodies prioritising active, measurable efforts to identify and eliminate barriers to gender equity in medicine – but recent international guidelines and consensus statements show glimpses that at least we are beginning to make the diagnosis. Perhaps we can be cautiously optimistic that a cure may follow soon.

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